Claims

What is claimed is:

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1. A manifold and valve assembly comprising

a manifold block having an inlet, an outlet, and a conduit in fluid communication with the inlet and with the outlet,

a valve having a portion movable within the conduit between a first position blocking fluid communication between the inlet and the outlet and a second position in which the inlet is in fluid communication with the outlet,

a solenoid operable to move the valve from the first position to the second position in response to an electrical input applied to the solenoid, and

a lever operable to move the valve from the first position to the second position in response to a manual input applied to the lever.

2. The manifold and valve assembly of claim 1, further comprising a lock engaging the lever to lock the lever in a position having the valve in the second position.

3. The manifold and valve assembly of claim 2, wherein the lock includes a lock solenoid and a lock bar coupled to the lock solenoid, the lock bar engages the lever, and the lock solenoid is operable to move the lock bar in response to an electrical input to the lock solenoid.

4. The manifold and valve assembly of claim 2, wherein the lock includes a lock bar movable into and out of engagement with the lever and a lock solenoid coupled to the lock bar, the solenoid is operable to move the lock bar relative to the lever.

5. The manifold and valve assembly of claim 1, wherein the lever is pivotally coupled to the manifold block.

6. The manifold and valve assembly of claim 1, wherein the solenoid is positioned to lie between the manifold block and the lever.

7. The manifold and valve assembly of claim 1, wherein the valve includes a stem, the lever includes an opening, and a part of the stem is received in the opening.

8. A controller for a hospital bed having a bed frame and a support section arranged to receive a portion of a patient's body and being vertically movable with respect to the frame, comprising:

a fluid actuated cylinder having a housing and a piston, the piston being attached to one of the support section and the bed frame and the housing being attached to the other of the support section and the bed frame,

a supply of fluid,

a fluid supply path providing fluid communication between the fluid supply and the fluid actuated cylinder,

a manually operated pump in the fluid supply path,

an electrically operated pump in the fluid supply path,

a valve block including a solenoid operated supply valve with manual override in the fluid supply path and designed to selectively interrupt the fluid supply path,

an electrical supply actuator connected to the solenoid of the supply valve and to the electrically operated pump to electrically control the interruption of fluid communication between the fluid actuated cylinder and the fluid supply, and

a manual actuator connected to the manual override of the supply valve to manually control the interruption of fluid communication between the fluid actuated cylinder and the fluid supply, the manual actuator having a manual setting in which the fluid supply path is uninterrupted, and another manual setting in which the fluid supply path is interrupted.

9. The apparatus of claim 8 and further comprising an electrically actuated manual setting remover coupled to the electrical actuator so that the manual setting is removed upon electrical actuation of the solenoid of the valve.

10. The apparatus of claim 8 and further comprising a fluid return path providing fluid communication between the fluid supply and the fluid actuated cylinder, a solenoid operated return valve with manual override to selectively interrupt fluid communication between the fluid actuated cylinder and the fluid return path, an electrical control including the electrical supply actuator and an electrical return actuator connected to the solenoid of the return valve to electrically control the interruption of fluid return path, and wherein the manual supply actuator is also

connected to the manual override of the return valve to manually control the interruption of fluid return path, the manual actuator having a manual setting in which the fluid supply path is uninterrupted, and another manual setting in which the fluid supply path is interrupted.

11. A valve block comprising:

a fluid supply path,

a fluid return path,

a valve assembly including a supply member positionable between a supply interruption position in which the supply member interrupts the fluid supply path and a supply position in which the supply member does not interrupt the fluid supply path and a return member positionable between a return interruption position in which the return member interrupts the fluid return path and a return position in which the return member does not interrupt the fluid return path,

a multi-state manual actuator operably connected to the supply member and the return member, the manually operated valve actuator being designed and arranged to assume a supply state in which the supply member is in the supply position and the return member is in the return interruption position, a return state in which the return member is in the return position and the supply member is in the supply interruption position, and a neutral state wherein the supply member and the return member are free to assume any position,

an electrical actuator operably connected to the supply member to selectively position the supply member between the supply interruption position and the supply position and operably connected to the return member to selectively position the return member between the return interruption position and the return position,

a controller for generating an override signal, and

a manual actuator override designed and arranged to place the multi-state manual actuator in the neutral state when an override signal is generated,

wherein the controller generates the override signal when the electrically operated actuator is actuated.

12. The valve block of claim 11 wherein the valve assembly includes a supply valve and a spaced apart return valve.

13. The valve block of claim 11 wherein the supply member includes a supply-opened engagement point and the return member includes a return-opened engagement point and the multi-state manual actuator includes an arm wherein the arm engages the supply-opened engagement point and does not engage the return-opened engagement point when the multi-state manual actuator is in the supply state, the arm engages the return-opened engagement point and does not engage the supply-opened engagement point when the multi-state manual actuator is in the return state, and the arm does not engage either the supply-opened or return-opened engagement points when in the neutral position.

14. The valve block of claim 13 wherein the multi-state manual actuator includes a spring element to bias the multi-state manual actuator in the neutral state, a supply state catch to lock the multi-state manual actuator in the supply state, and a return state catch to lock the multi-state manual actuator in the return state.

15. The valve block of claim 13 wherein the override includes a catch engager and a catch engager actuator to position the catch engager between a catch-engaged state and a catch-disengaged state, the catch engager being designed and arranged to engage one of the supply catch and the return catch when the catch engager actuator is in the catch-engaged state.

16. The valve block of claim 13 wherein the catch engager actuator includes an arm the arm being biased to engage one of the supply catch and the return catch and a solenoid electromagnetically coupled to the arm to disengage the arm from one of the supply catch and the return catch when the solenoid is energized.

17. The valve block of claim 16 wherein the interrupt signal causes the solenoid to be energized.

18. The valve block of claim 17 wherein the valve assembly includes a supply valve and a spaced apart return valve.

19. The valve block of claim 18 and further comprising a housing having a mounting surface, a fulcrum having a first side and a second side mounted to the mounting surface, wherein the arm is pivotally mounted to the fulcrum and the supply valve is mounted to the mounting surface on the first side of the fulcrum and the return valve is mounted to the mounting surface on the second side of the fulcrum.

20. A control for a hospital bed having a bed frame, a first support section arranged to receive a first portion of a patient's body and being vertically movable with respect to the frame, and a second support section arranged to support a second portion of a patient's body comprising:

a first fluid actuated cylinder having a housing and a piston, the piston being attached to one of the first support section and the bed frame and the housing being attached to the other of the first support section and the bed frame,

a second fluid actuated cylinder having a housing and a piston, the piston being attached to one of the second support section and the bed frame and the housing being attached to the other of the second support section and the bed frame,

a supply of fluid,

a fluid return path providing fluid communication between the fluid supply and the cylinders,

a fluid supply path providing fluid communication between the fluid supply and the cylinders,

a manually operated pump in fluid communication with the fluid supply path,

an electrically operated pump in fluid communication with the fluid supply path,

a valve block including a first valve assembly in fluid communication with the first fluid actuated cylinder, the fluid supply path, and the fluid return path and designed to selectively interrupt fluid communication between the first fluid actuated cylinder and the fluid supply path and to selectively interrupt fluid communication between the first fluid actuated cylinder and the fluid return path, and a second valve assembly in fluid communication with the second fluid actuated cylinder, the fluid supply path, and the fluid return path and designed to selectively interrupt fluid communication between the second fluid actuated cylinder and the fluid supply path and to selectively interrupt fluid communication between the second fluid actuated cylinder and the fluid return path,

a valve controller connected to the first valve assembly and the second valve assembly to control the interruption of fluid communication between the first fluid actuated cylinder and the fluid supply path, the first fluid actuated cylinder and the

fluid return path, the second fluid actuated cylinder and the fluid supply path and the second fluid actuated cylinder and the fluid return path,

wherein the valve controller is designed to prohibit the first valve assembly from assuming a state in which fluid communication is simultaneously not interrupted between the first fluid actuated cylinder and the fluid return path and the first actuated cylinder and the fluid supply path and to prohibit the second valve assembly from assuming a state in which fluid communication is simultaneously not interrupted between the second fluid actuated cylinder and the fluid return path and the second actuated cylinder and the fluid supply path.